

I CLAIM:

1. A fuel supply for a fuel cell, comprising:

a fuel storage area;

5 a fuel outlet configured to pass fuel from the fuel storage area; and

a backpressure regulator configured to maintain a lowered pressure within the fuel storage area relative to atmospheric pressure outside of the fuel storage area when fuel is not being transferred to the fuel cell.

10 2. The fuel supply of claim 1, the fuel storage area being bounded by a flexible container that collapses as fuel is drawn from the fuel storage area, wherein the backpressure regulator includes a biasing element configured to bias the container against collapse to maintain a backpressure
15 across the fuel outlet.

20 3. The fuel supply of claim 2, wherein the biasing element is a spring.

25 4. The fuel supply of claim 2, the flexible container having a wall, wherein the biasing element is disposed within the flexible container and pushes the wall of the flexible container outwardly.

30 5. The fuel supply of claim 4, wherein the backpressure regulator includes at least one plate disposed between the biasing element and the wall of the flexible container such that the biasing element is configured to push the plate against the wall.

10056175-01220202210-5125001

6. The fuel supply of claim 2, the flexible container having a wall, wherein the biasing element is disposed outside of the fuel storage area and is configured to pull against the wall of the flexible container to bias the flexible container against collapse.

5

7. The fuel supply of claim 1, wherein the backpressure regulator includes a capillary element having an interior, the capillary element being configured to draw a volume of fuel from the fuel storage area into the interior to create a backpressure across the fuel outlet.

10

8. The fuel supply of claim 7, wherein the capillary element includes an elongate tube in fluid communication with the fuel storage area.

15

9. The fuel supply of claim 8, the fuel storage area being bounded by a fuel container having a wall, wherein the elongate tube is formed in the wall of the fuel container.

20

10. The fuel supply of claim 7, wherein the capillary element includes a foam element in fluid communication with the fuel storage area.

25

11. The fuel supply of claim 10, wherein the foam is an open cell foam.

30

1056175-01202

12. A fuel supply for a fuel cell, comprising:

a fuel storage area enclosed by a fuel container;

a fuel outlet disposed on the fuel container, the fuel outlet configured for coupling with the fuel cell to pass fuel from the fuel storage area to the fuel cell; and

a backpressure regulator disposed within the fuel container to cause fuel at the fuel outlet to tend to flow toward the fuel storage area when fuel is not being transferred to the fuel cell.

13. The fuel supply of claim 12, the fuel container having a wall, wherein the backpressure regulator includes a biasing element for biasing the wall of the fuel container outwardly.

14. The fuel supply of claim 13, wherein the biasing element includes a spring.

15. The fuel supply of claim 14, wherein the spring is disposed within the fuel container, wherein the biasing element includes at least one plate disposed between the spring and the wall of the fuel container, and wherein the spring is configured to push the plate against the wall of the fuel container.

16. The fuel supply of claim 12, wherein the backpressure regulator includes a capillary element configured to draw in fuel to create a backpressure across the fuel outlet.

17. The fuel supply of claim 16, wherein the capillary element includes at least one elongate tube.

18. The fuel supply of claim 17, wherein the elongate tube is formed in the wall of the fuel container.

5 19. The fuel supply of claim 17, wherein the elongate tube has a spiral configuration.

10 20. The fuel supply of claim 16, wherein the capillary element includes a foam element.

15 21. The fuel supply of claim 20, wherein the foam element is disposed within the fuel storage area.

20 22. The fuel supply of claim 20, wherein the foam element is separated from the fuel storage area and is in fluid connection with the fuel storage area via at least one channel.

25 23. A fuel supply for a fuel cell, comprising:
a fuel container configured to store fuel, the fuel container having a wall;

a fuel outlet disposed on the fuel container, the fuel outlet being configured to pass fuel from the fuel container to the fuel cell; and

a biasing element disposed within the fuel container, the biasing element being configured to bias the wall of the fuel container outwardly to form a backpressure across the fuel outlet.

30

24. A fuel cell including a fuel supply, the fuel supply comprising:
a fuel storage area;
a fuel outlet configured to pass fuel from the fuel storage area; and
a backpressure regulator configured to maintain a lowered pressure
5 within the fuel storage area relative to atmospheric pressure outside of the fuel
storage area when fuel is not being transferred to the fuel cell.

10056175-042202